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ROBERT A. KINNEY

"KOREAN BULLDOZERS" HELP LAY A NEW RAILROAD LINE IN RUGGED SOUTH KOREA

The yoked team carries off a huge stone which workmen in the background have dislodged from a cut through a mountain. Supervising is an official of the ECA, which built this line before the war to connect with Korea's existing railway network (Bulletin No. 3).

Bulletin No. 1, January 28, 1952

Aegean Islands Teem with Tales of Old

A BULLDOZER blade, leveling part of the Aegean Sea Island of Lésvos (Mitilíni) in the construction of an airport, has unearthed ruins of what may be one of Christendom's earliest churches and an important addition to the already rich archeology of the Aegean islands.

Lésvos lies less than 10 miles off the Turkish coast. It is one of the largest of the islands that dot the Aegean, a body of water running north from the eastern Mediterranean Sea to separate the Grecian peninsula from Asia Minor.

Trojan Horse Legend

Each Aegean island has its own distinctive place in history, religion, the arts, and legend. Lésvos was the home of the poets Sappho and Alcaeus in the seventh century before Christ. The philosopher Theophrastus, successor to Aristotle, was born there.

North of Lésvos lies the tiny island of Bozca Ada, which today belongs to Turkey. During the Trojan War, the Greeks withdrew to it from their siege positions while the gullible Trojans breached the walls of Troy to admit the wooden horse. To the south is Khíos (Chios), home of Glaucus, who invented the art of welding iron. Khíos also claims it is the birthplace of Homer, but this distinction is contested by other localities, among them Izmir (Smyrna).

Many of the islands are closely connected with the early Christian church. On Pátmos (illustration, next page) is the Greek Orthodox Monastery of St. John, dedicated to John the Apostle, who is believed to have spent part of his later life there, writing his Gospel and the *Book of Revelation*. The Island of Náxos is closely connected with St. Dionysius of the Greek Orthodox Church.

On Tínos is an icon of the Virgin Mary, supposedly painted by St. Luke and capable of miraculous cures for the pilgrims who throng there each year. The small island of Míkonos (illustration, inside cover) has several hundred churches, many of them erected as family chapels by pious retired sea captains.

Birthplace of Medicine

Míkonos is also the home of windmills with sails that can be furled in a heavy wind or set at full canvas for light breezes.

The Island of Kos was the birthplace of Hippocrates, father of medicine. And on Kéa (Tziá) the ancient inhabitants apparently felt little need for medicine, for the aged, at any rate. Their legal code prescribed a cup of poison hemlock for anyone reaching the age of 60.

Dhílos (Delos) is famed in Greek mythology, which says the island drifted over the sea until Zeus anchored it so that it could become the birthplace of Apollo and Artemis. Dhílos once enjoyed prosperity as a free port. Much of the trade of the eastern Mediterranean passed through

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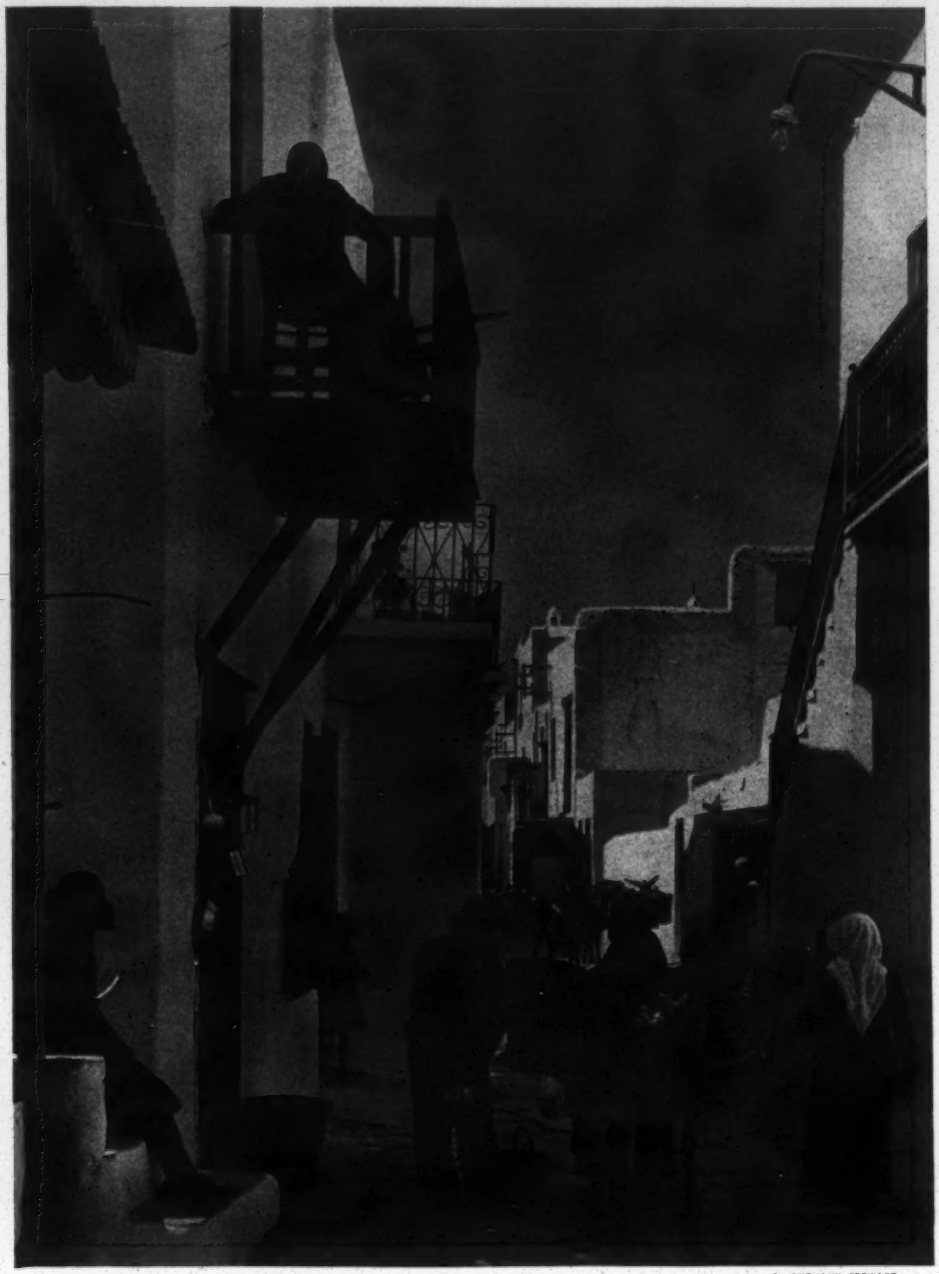

B. ANTHONY STEWART

IN WHITEWASHED, BALCONIED HOUSES ON MÍKONOS LIVE RETIRED GREEK SEAMEN AND THEIR WIVES

A panniered donkey and his master peddle vegetables. Nearly everyone else shows intense interest in the photographer. Out-of-the-way Míkonos lies in the middle of the Aegean Sea, halfway between the Greek and Turkish mainlands. The Aegean is an eastern arm of the Mediterranean Sea. On near-by Dhílos (Delos) Island, Julius Caesar once was held captive (Bulletin No. 1).

Bulletin No. 2, January 28, 1952

Jersey Turnpike Adds to Nation's Toll Roads

TOLL roads, which died a bankrupt's death as canals and railroads burgeoned a century ago, are returning to America. Motorists now pay to use nearly 1,000 miles of turnpikes, expressways, and parkways in all parts of the United States, mostly in the northeast. The New Jersey Turnpike, 130 miles long, 6 lanes wide, leading to New York City, is the newest addition to the nation's toll roads.

New York City's landscaped suburban arteries and Connecticut's Merritt Parkway (illustration, next page) put tollgates on modern highways in the 1930's. But it was the 160-mile, mountain-tunneled western portion of the Pennsylvania Turnpike, opened in 1940, which proved the possibility of financing lengthy superhighways by the collection of tolls.

Toll Rush Began after World War II

These pay-as-you-go roads have no red lights, no grade crossings with railroads or other highways, and no sharp curves or steep climbs. They slam straight across hillside and gully—gleaming double ribbons of concrete or blacktop with a grass strip between. Lonely teamsters who drove sway-bottomed Conestoga wagons down the Lancaster Pike 150 years ago would be amazed at the volume of today's traffic.

When World War II ended, the rush for toll roads began. Maine built a 44-mile toll road from Kittery to Portland, by-passing United States Highway 1, as the first section in a proposed 400-mile turnpike to Canada. A 14-mile toll link across the foot of New Hampshire followed.

In Connecticut the Wilbur Cross Parkway, paid for partly by Merritt Parkway tolls, crawled northeast toward the Massachusetts border. Pennsylvania pushed its turnpike farther eastward to King of Prussia outside Philadelphia, and now has built westward to the Ohio line. The New Jersey Turnpike opened in time for the 1951 Christmas rush.

A toll road is going down between Tulsa and Oklahoma City. Another is being built from Denver to Boulder, Colorado. New York's giant Thruway, to span the entire state a few years hence, is not nominally a toll road, but present plans call for special license fees in place of tolls.

"A Return to 18th-century Thinking"

Toll roads are not synonymous with express highways. The Bureau of Public Roads, working with individual state highway departments, is making progress on a 40,000-mile interstate superhighway network that has all the pleasant-motoring features of the most advanced toll road. Examples are: U. S. 40 across Illinois, U. S. 66 in Missouri, the Shirley Highway in Virginia, extensive freeways in California, and an urban expressway around Boston. The pleasure of driving on these roads is enhanced by the lack of tollgates.

But in special areas, conventional financing of highway construction seems unable to meet the demand for ever bigger, straighter, faster, and safer roads. Despite federal opposition to the whole idea of toll roads, and charges by other opponents that it is "a return to 18th-century thinking," the tollgate is coming back.

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its harbor, and it became a slave and ransom market for pirates who picked up their victims from any undefended ship or seaport.

One captive of the pirates of Dhílos, waiting for his ransom, promised to come back and crucify his captors. Undoubtedly they were used to threats like these, because they held the man, a Roman, until the ransom money arrived.

But they reckoned without their man. He kept his word. He did come back and crucify them. His name was Julius Caesar.

NOTE: The Aegean islands may be located on the National Geographic Society's map of Central Europe Including the Balkan States. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

For further information, see "Isles of Greece," in the *National Geographic Magazine* for May, 1944; "The Greek Way," "The Glory That Was Greece" (32 paintings), and "Greece—the Birthplace of Science and Free Speech," March, 1944; "Rhodes, and Italy's Aegean Islands," April, 1941; "Classic Greece Merges into 1941 News," January, 1941; and "Ageless Luster of Greece and Rhodes" (16 duotone photographs), April, 1938; see also, in the GEOGRAPHIC SCHOOL BULLETINS, October 6, 1947, "Legend and Fact Merge in Greek Islands." *(Back issues of the Magazine may be obtained from the Society's headquarters at 60¢ a copy, 1946 to date; $1.00, 1930-1945; and $2.00, 1912–1929. Earlier issues, when available, varied prices.)*

PHOTOGRAPH FROM DOROTHY HOSMER

ON PÁTMOS, A MONK GUIDES AN AMERICAN VISITOR TO THE CAVE OF ST. JOHN

At the end of this rocky trail, islanders say, the Apostle John wrote the *Book of Revelation*. In the distance gleam the houses of Pátmos, chief port of the Greek Aegean Island of the same name.

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the modern, visual medium for interpreting history and keeping abreast of the times? The Society's 10-color wall maps cost only 50¢ in the United States. Send for price list.

Korean Railways Carry Major War Load

ON the railroad that went to war in Korea, fox holes are the whistle stops and the fighting front is a freight yard.

Several dozen new diesel-electric locomotives have been shipped to Korea recently, the United States Army Transportation Corps has disclosed. Unheralded in dispatches, they are weapons as important as the freight they haul north through the battered Korean countryside—the groaning trainloads of tanks, guns, supplies, and troops.

Japanese Built the System

In the dark days of the Pusan foothold, an entire division was picked up and moved by train, 100 miles in less than 24 hours, to meet a communist spearhead. Many another time, rail transportation has spelled the difference between success and failure of United Nations operations. Railways have been used tactically to an extent not seen since the American Civil War. They also have carried 95 per cent of the United Nations supply load in some areas.

Japanese military engineers, in the years before World War II, built one of the Far East's finest rail networks in Korea. In many ways it was better than Japan's own narrow-gauge system. Track and equipment in Korea are standard gauge, built to match the Manchurian railways.

Roadbeds are well graded and well ballasted. Cuts and tunnels are reinforced with concrete and steel. Two and sometimes three bridges were built at vital river crossings on the 590-mile double-track main line from Pusan to Seoul and on northwest to Sinuiju on the Manchurian border. Japan built a railroad to meet military needs. Today the rails are doing just that, but not for the Japanese.

Prior to the opening of hostilities in 1950, American occupation authorities built some new connections (illustration, cover). When the aggressors struck, there were about 3,500 miles of standard-gauge lines and some 400 miles of narrow-gauge branches throughout Korea. But the "Iron Curtain" across the 38th parallel had already chopped the system in two. In South Korea, an area about the size of the State of Indiana, there were 2,730 miles of track, requiring 239 tunnels and 1,724 bridges. Trains usually were crowded (illustration, next page).

Throttle in One Hand, Gun in the Other

During the 19 months of the war, many parts of this network have been wrecked and rebuilt several times. Battered rolling stock has been patched up by one part repair facilities and two parts ingenuity. The small Korean steam locomotives often did their jobs with bullet holes in their boilers plugged with wooden pegs.

Members of the United States 3rd Transportation Military Railway Service, who have supervised United Nations rail operations since the early days of the war, often hold the throttle in one hand and a loaded gun in the other.

Trains have been pushed through guerrilla-held country with sand-

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In all, 29 states have considered toll-road legislation; 15 have passed it. Nearly 1,200 miles of toll highways are now in the blueprint stage.

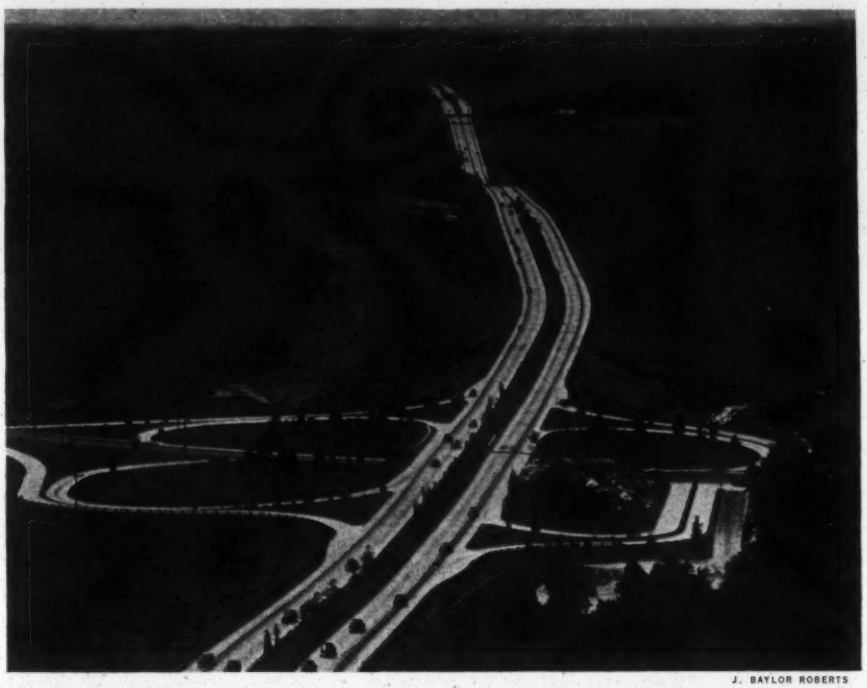
The needs of today's traffic are great: $60,000,000,000 stretched over 15 years is the Bureau of Public Roads' estimate of the amount needed to bring United States highways up to minimum adequacy. Opponents of toll roads say that this sum could be met if all vehicle and gasoline taxes were earmarked for highway construction rather than diverted to other uses as happens in many states today. They also believe that local roads and streets should be financed by general taxes paid by abutting landholders and others who benefit. They recall that in horse-and-buggy days the buggy was not licensed and the horse's oats were not taxed and highways were paid for entirely out of general and land tax funds.

Be that as it may, most motorists seem not to mind paying the toll, thus perhaps proving their descent from the Lancaster Pike wagoners.

Nearly all American roads were privately built and maintained on toll receipts 150 years ago, just as 14 short scenic toll roads to mountaintops or coastal resorts are today. The vast network of city and country streets and highways built in the 1920's "to get the farmer out of the mud" were public; the toll system, people said, was dead.

NOTE: Federal and state highways are shown on the Society's maps of the United States, and various sections of the country.

See also, "Alaskan Highway an Engineering Epic," in the *National Geographic Magazine* for February, 1943; and "U. S. Roads in War and Peace," December, 1941 (out of print; refer to your library).



J. BAYLOR ROBERTS

HIGHWAYS LIKE CONNECTICUT'S MERRITT PARKWAY, WHETHER OR NOT TOLLS ARE CHARGED, PROVIDE PLEASANT STRETCHES OF NON-STOP DRIVING FOR TODAY'S CROWDED MOTORISTS

Bulletin No. 4, January 28, 1952

Animal World Has Social Classes, Too

THE tortoise is a snob. In the New York Zoological Park, popularly called the "Bronx Zoo," giant Galapagos tortoises sleep, eat, and travel in groups according to some mysterious social classification.

The domestic fowl conforms to the same system. In the barnyard, each hen is kept firmly in place by the one next higher in the social order. Certain fishes have social levels which give each its position, down to the last lowly member of a school. This underling is bullied by all the other members.

Hens Quick to Recognize Ability

In many different branches of the animal world, scientists have observed a highly developed social system. This is often called the "pecking order." It decrees which birds in a given flock are entitled, by the laws of the clan, to peck which others and get away with it.

At Kansas State College a few years ago, eight hens were brought together in a group. Within five days the pecking ability of each member had been recognized by the rest, and a hierarchy was set up—a social order in which all members rank one above another.

The leader could scratch, roam, or roost wherever she chose. She could peck all other members of the flock with no fear of punishment. Hen Number Two could shove aside all but the leader, and so on down the line to the last and most menial fowl.

The scientists at the New York Zoological Park have a theory that a similar system may have been handed down among the now nearly extinct Galapagos tortoises from long centuries of one-way traffic on the turtles' rocky home islands in the Pacific, 600 miles west of Ecuador.

Vast numbers of these land turtles, migrating with the seasons, once wore deep trails between highlands and seashore in the Galapagos. Only wide enough for one tortoise at a time, the gullies made it necessary for the shellbacked travelers to move in single file, all at the pace of the leader. Long-continued traffic control may have developed a sort of social order among the tortoise groups.

Birds Also Defend Their Rights

Fourteen different bluffing methods have been noted among the well-armored crawlers. A pair of them will snap sluggishly at one another across the back of a third. Their eyes will blink fiercely, their necks stretch out as far as they will go, but their heads will remain a foot apart. "Over-climbing" and the "bulldozer" technique are other methods of proving which stands higher in tortoise society.

Among the birds, cardinals, redpolls, waterfowl, and many others follow pecking orders, Dr. Arthur A. Allen of Cornell University reports in his book, *Stalking Birds with Color Camera,* published recently by the National Geographic Society.

In guarding its rights, a cardinal will fight its own reflection in a window. A ruffed grouse rumbles like a miniature freight train; a prairie

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bagged gondola cars mounted with machine guns on the front and rear. Locomotives and ammunition-loaded cars have been snatched from beneath the noses of the communists as the enemy advanced on burning yards and roundhouses.

Head of track has stayed close behind the front lines. Today the main line ends at the demolished Han River bridge just above Munsan, advanced base of United Nations peace negotiators. Here, on top of the hottest spot in the world, newswise, a 10-car train is parked as the press headquarters for news correspondents covering the war and the current truce talks at Panmunjom.

NOTE: Korea appears on the Society's map of Japan and Korea.

For additional information, see "Roaming Korea South of the Iron Curtain," in the *National Geographic Magazine* for June, 1950; "With the U. S. Army in Korea," June, 1947; "Jap Rule in the Hermit Kingdom," October, 1945; and "Chosen—Land of Morning Calm," October, 1933.

See also, in the GEOGRAPHIC SCHOOL BULLETINS, October 15, 1951, "Another Winter Approaches in Korea"; "Korea Northlands Are Rugged and Remote," November 13, 1950; and "Korea Action Geared to Summer Monsoon's End," October 16, 1950.

U. S. ARMY SIGNAL CORPS, OFFICIAL

IN PREWAR KOREA, TRAINS WERE CROWDED; HERE PASSENGERS PRESS INTO A BAGGAGE CAR

Sutter Creek Gold Recalls Forty-Niners

A NEW gold strike, assaying $400-$700 a ton, has skyrocketed the little California mining town of Sutter Creek out of its recent $17-a-ton doldrums. The find was made at the near-by historic Central Eureka Mine that began operations in 1869.

Situated in the Mother Lode district of the Sierra Nevada, 36 miles southeast of Sacramento, Sutter Creek is a name that figured prominently in the country's greatest migration—the California gold rush.

Sutter Lost All in Gold Rush

The town of Sutter Creek missed the riotous stampede of '49 by two years but the discovery of quartz gold in the area in 1851 opened the bonanza that made fortunes for Alvinza Hayward, Hetty Green, Leland Stanford, and others.

John A. Sutter, for whom Sutter Creek was named, was a Swiss immigrant who had acquired some 50,000 acres "somewhere in the interior" by grant from Mexico. He did not profit from the discovery of gold within his "barony." His vast holdings were lost in the wake of the frenzy.

The 50¢ worth of gold that started the 1849 rush to California was discovered by Sutter's foreman, Charles Marshall, in the tailrace of the Sutter mill, about 40 miles north of the town of Sutter Creek.

With the cry of "Gold," Sutter's Fort at New Helvetia (now Sacramento), along with his mill, tannery, distillery, blanket-weaving shop, and blacksmith shop were deserted by his skilled laborers bent on making their own fortunes in gold.

Frenzied crowds from the East overran Sutter's property, stole his cattle, drove off his Indian workers, and finally disputed his rights to his land. The final blow came when the United States Supreme Court found his Mexican grant invalid.

California Still Leads in Gold

Millions in gold were taken from Sutter's empire but Sutter himself lost everything. He moved to Pennsylvania in 1873 with only a pension in place of his former wealth. He died in Washington, D. C., in 1880, after vainly appealing to Congress for restoration of his property.

California is far from finished as a gold producer. The Golden State leads the 48 in production. It helps make the United States the third-largest producer of gold in the world. Today, as in the days of the '49 rush, most of California's gold is found in a narrow strip along the western slopes of the Sierra Nevada.

This belt of territory was early named the Mother Lode country. Lode means vein. The term describes how the gold was first mined from large veins running through the ground.

Loose gold from lodes washes down the slopes and collects in streams. It is recovered as placer gold. In placer mining, gold-bearing gravels are swirled and sifted in water, with the heavier gold particles falling to the bottom. The gravel, mud, and water runs off the top. Early miners used

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chicken will stamp and make a booming sound; mallard ducks sometimes go into a "dogfight" in the air. Every bird has some method of proving its superiority.

Sociability among fishes varies widely. A school of "soldier" trout, for example, is as precise as any military formation. Hundreds of rainbow trout all swim in the same direction, at the same speed, each a set number of "paces" from his neighbors.

A goldfish put in a bowl alone may become so lonely and frustrated that it will actually become a "mental case." But the vicious piranhas of South America are so afraid of one another that they will try frantically to escape through the glass walls of a tank when two or more of them are put together.

NOTE: For additional information, see "Easter Egg Chickens" (9 color photographs), in the *National Geographic Magazine* for September, 1948; "Sights and Sounds of the Winged World," June, 1945; "Capturing Giant Turtles in the Caribbean," August, 1943; "Ambassadors of Good Will" (birds), June, 1942; "Treasures of the Pacific" (fish), October, 1938; and "America's Debt to the Hen" and "Fowls of Forest and Stream Tamed by Man," March, 1930.

ROBERT F. SISSON

FOR THESE SOCIALLY-UNCONSCIOUS CHICKENS, ITS A SHORT LIFE BUT A WELL-FED ONE

On a Delaware poultry farm, 11,000 broilers, offspring of Barred Plymouth Rock roosters and New Hampshire Red hens, are fattened up for market. For eleven weeks they are given food rich in vitamins. At the end of this period they go to their doom. Their lives are too short to be hampered by the social distinctions that set a pattern of life for their elders.

their hats, skillets, or pans, as they "panned" gold by hand on stream banks. Today huge dredges scoop up the rich gravels and mechanical sifters separate the gold.

The gold-bearing strip of the Sierra Nevada can be traced on maps by noting the place names. The Forty-niners gave their rough camps colorful titles, some of which still live as names of present-day towns and villages. Examples are: Angels Camp (illustration, below), El Dorado, Placerville, and Rough and Ready.

NOTE: Sutter Creek and other gold-mining towns may be located on the Society's map of the Southwestern United States.

For additional information on northern California, see "Yosemite National Park" (9 color photographs), in the *National Geographic Magazine* for April, 1951; "California, Horn of Plenty," May, 1949; "My Life in the Valley of the Moon," December, 1948; "More Water for California's Great Central Valley," November, 1946; and "California—85 Years after the Gold Rush" (23 color photographs) and "Northern California at Work," March, 1936; see also, in the GEOGRAPHIC SCHOOL BULLETINS, March 14, 1949, "Gold-Rush Towns Continue Open House."

B. ANTHONY STEWART

DAYS AND WAYS OF '49 ARE LIVED AGAIN IN ANGELS CAMP'S ANNUAL FESTIVAL

Horse-drawn wagons, covered and uncovered, parade through the main street of the old California mining town, followed by automobiles perhaps half a century younger. Other features of the fiesta, which draws visitors from miles around, are a "jumping frog" contest patterned after Mark Twain's tale written in—and of—the Mother Lode country, and re-enactments of the pony-express rides, lynchings, and stagecoach robberies which furnished excitement in the region a century ago.

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